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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,613	12/14/2005	Kenji Tochigi	047084-0125	5435
22428 7590 01/15/2009 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007				
EXAMINER				
TAOUSAKIS, ALEXANDER P				
ART UNIT		PAPER NUMBER		
3726				
MAIL DATE		DELIVERY MODE		
01/15/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/550,613

Applicant(s)

TOCHIGI ET AL.

Examiner

ALEXANDER P. TAOUSAKIS

Art Unit

3726

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/ISD)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date 9/23/2005

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-4 and 7-9 in the reply filed on 10/9/2008 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 4 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hibi et al (4,768,641).

1. Hibi et al teach a corrugated fin feeding apparatus for feeding corrugated fins to a temporary assembling device of a heat exchanger core which alternately arranges tubes and corrugated fins for a heat exchanger to temporarily assemble the heat exchanger core (*see column 1 lines 13-19, where it discloses an assembling device for arranging heat exchanger corrugated fins for an automotive radiator, and column 1 lines 25-29, where it discloses it is well known to arrange the corrugated fins with tubes to form a heat exchanger*), the corrugated fin feeding apparatus comprising:

a cutting device which cuts a continuous fin material in corrugated form without stopping conveyance of the fin material toward a downstream side thereof to thereby

produce corrugated fins having a predetermined length (*see column 4 lines 10-14 and Figure 1*); and

a conveying device (12, 20) (*see Figure 1*) which adds a force to the corrugated fins being cut to increase a speed thereof to separate the adjacent corrugated fins from each other to thereby convey the corrugated fins at predetermined intervals (*see Figure 1, and note that rollers 12 convey the fins to the cutter 14, the rollers add force, i.e. push, to transfer fins to the cutting station*).

3. Hibi et al teach the corrugated fin feeding apparatus according to claim 1 wherein said conveying device comprises: a belt conveyor (21) (*see Figure 1*) which has a belt to convey the corrugated fins (*see Figure 1 and column 4 lines 25-27*); and position determining portions (101) provided at predetermined intervals on the belt of said belt conveyor (*see Figure 5*), wherein the corrugated fins are arranged between said position determining portions to determine positions of the corrugated fins to thereby convey the corrugated fins at predetermined intervals (*see column 4 lines 35-38, where it discloses that guide plates 101 determine the position of the fins by controlling their movements and forcing them into the proper positions*).

4. Hibi et al teach the corrugated fin feeding apparatus according to claim 1, wherein said accumulating device (23) comprises: a rotating shaft (25); and a plurality of said accumulating rooms (26) provided in parallel to an axial direction of said rotating shaft (*see Figures 1 and 6 and 8-12*), wherein the corrugated fins are accommodated while said plural accumulating rooms (26) are rotated in a circumferential direction of

said rotating shaft (*see column 4 lines 51-60*), and said inserting device feeds after the rotation thereof the corrugated fins to the temporary assembling device of the heat exchanger core (*see column 3 lines 22-30, where it discloses after accumulating the corrugated members, they are fed to an assembly, i.e. inserting device, to manufacture a heat exchanger*).

9. Hibi et al teach the corrugated fin feeding apparatus according to claim 3, wherein said accumulating device (23) comprises: a rotating shaft (25); and a plurality of said accumulating rooms (26) provided in parallel to an axial direction of said rotating shaft (*see Figures 1 and 6 and 8-12*), wherein the corrugated fins are accommodated while said plural accumulating rooms (26) are rotated in a circumferential direction of said rotating shaft (*see column 4 lines 51-60*), and said inserting device feeds after the rotation thereof the corrugated fins to the temporary assembling device of the heat exchanger core (*see column 3 lines 22-30, where it discloses after accumulating the corrugated members, they are fed to an assembly, i.e. inserting device, to manufacture a heat exchanger*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 2, 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hibi et al (4,768,641) in view of Bongiovanni et al (5,207,083)

2. Hibi et al teach the corrugated fin feeding apparatus according to claim 1 further comprising:

a forcible conveying device (15) (*see Figure 1*) which adds a driving force to the corrugated fins being conveyed to push out the corrugated fins toward a downstream side thereof and distributes the corrugated fins in predetermined directions (*see column 3 lines 22-24, where it discloses a device which adds a contracting force and drives the corrugated fins 13 to the accumulating device 23*); an accumulating device (23) having a plurality of accumulating rooms (26) (*see Figure 6*) into which the corrugated fins are distributed and accommodated respectively (*see column 4 lines 55-56*);

an inserting device which feeds a predetermined number of the corrugated fins simultaneously to the temporary assembling device of the heat exchanger core when the predetermined number of the corrugated fins are accommodated into the

accumulating rooms core (*see column 3 lines 22-30, where it discloses after accumulating the corrugated members, they are fed to an assembly, i.e. inserting device, to manufacture a heat exchanger*).

Hibi et al fails to teach a control device which synchronously controls said forcible conveying device, said accumulating device, and said inserting device based on positions of the corrugated fins determined by said conveying device.

Bongiovanni et al discloses a device (48) which controls various devices in a fin forming apparatus using various sensors and programmed control outputs (*see Figure 1 and column 2 lines 1-11 and column 3 lines 14-30*).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a control device onto the fin forming apparatus of Hibi et al, as taught by Bongiovanni et al, because it improves control over the manufacturing, improving quality and allowing for error correction.

7.

Hibi et al teach the corrugated fin feeding apparatus according to claim 2, wherein said conveying device comprises:

a belt conveyor (21) (*see Figure 1*) which has a belt to convey the corrugated fins (*see Figure 1 and column 4 lines 25-27*); and position determining portions (101) provided at predetermined intervals on the belt of said belt conveyor (*see Figure 5*), wherein the

corrugated fins are arranged between said position determining portions to determine positions of the corrugated fins to thereby convey the corrugated fins at predetermined intervals (*see column 4 lines 35-38, where it discloses that guide plates 101 determine the position of the fins by controlling their movements and forcing them into the proper positions*).

8.

Hibi et al teach the corrugated fin feeding apparatus according to claim 2, wherein said accumulating device (23) comprises: a rotating shaft (25); and a plurality of said accumulating rooms (26) provided in parallel to an axial direction of said rotating shaft (*see Figures 1 and 6 and 8-12*), wherein the corrugated fins are accommodated while said plural accumulating rooms (26) are rotated in a circumferential direction of said rotating shaft (*see column 4 lines 51-60*), and said inserting device feeds after the rotation thereof the corrugated fins to the temporary assembling device of the heat exchanger core (*see column 3 lines 22-30, where it discloses after accumulating the corrugated members, they are fed to an assembly, i.e. inserting device, to manufacture a heat exchanger*).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXANDER P. TAOUSAKIS whose telephone number is (571)272-3497. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on (571) 272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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